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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,311	01/31/2002	Kyung Chul Woo	3449-0190P	5488
2292	7590	07/08/2005		EXAMINER
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			JAGAN, MIRELLYS	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 07/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/059,311	WOO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Mirellys Jagan	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 28 April 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-6 and 8-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-6 and 8-11 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent 62192196 to Yamamoto et al [hereinafter Yamamoto].

Yamamoto discloses a temperature sensor comprising:

a water temperature measuring sensor (18) and signal lines for connecting the sensor to a circuit for measuring a temperature of water;

a water gauge chamber (14) extending along an outer side of an outer edge of a cylindrical outer tub (2) of the washing machine; and

a hollow chamber cap (17) that is located at a bottom edge of the water gauge chamber to close an opened bottom portion of the gauge chamber;

wherein an entire surface of the cap that is exposed to the water defines an upper surface of the cap; the temperature measuring part is mounted in a seating portion of the cap; and the temperature measuring part is below the entire upper surface of the cap; and a lower portion of a side of the cylindrical outer tub is tapered inwardly toward a bottom of the outer tub (see figures 2 and 3).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of U.S. Patent 5,743,646 to O'Connell et al [hereinafter O'Connell].

Yamamoto discloses a temperature sensor having all of the limitations of claim 2, as stated above in paragraph 2, except for the cap having a heat insulating material inserted into its hollow space to maintain the sensor with in the cap and provide an adiabatic effect.

O'Connell discloses a temperature sensor for measuring temperature within a chamber. The temperature sensor is in a hollow probe that is filled with a heat insulating material. O'Connell teaches that it is beneficial to fill the probe with the material in order to maintain the sensor in place and provide efficient heat transfer (adiabatic effect) for faster response of the sensor (see column 3, lines 18-34).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sensor of Yamamoto by filling the hollow interior of the cap with a heat insulating material, as taught by O'Connell, in order to maintain the sensor in place and provide efficient heat transfer for faster response of the sensor.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto.

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Yamamoto discloses a temperature sensor having all of the limitations of claim 9, as stated above in paragraph 2, except for the lower portion of the cylindrical outer tub having the claimed shape, i.e., a truncated conical-shaped lower portion tapered inwardly toward a bottom of the outer tub such that the cap is separated from the cylindrical upper portion by a vertical length of the lower portion.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the shape of the cylindrical outer tub of the washing machine disclosed by Yamamoto so that it tapers inward away from the temperature sensor in order to allow more water to surround the temperature sensor of the cap and obtain a more accurate measurement of the water, and since the shape of the cylindrical outer tub of the washing machine claimed by applicant, i.e., having a conical-shaped lower portion tapered inwardly toward the bottom of the tub, is only considered to be obvious modifications of the shape or configuration of the cylindrical outer tub of the washing machine disclosed by Yamamoto as the courts have held that a change in shape or configuration without any criticality is within the level of skill in the art since the particular shape claimed is nothing more than one of numerous shapes that a person having ordinary skill in the art would have been able to provide using routine experimentation based on its suitability for the intended use of the invention. See In re Dailey, 149 USPQ 47 (CCPA 1976).

6. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto.

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Yamamoto discloses a sensor having all of the limitations of claims 8 and 10, as stated above in paragraph 2, but is silent as to the manner in which the cap is attached to the chamber and the particular material of the cap, and therefore does not disclose the cap being welded to the bottom edge of the chamber, and the cap being made of a plastic material.

Referring to claim 8, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sensor disclosed by Yamamoto by welding the cap to the chamber in order to more securely seal the opening at the bottom of the chamber and prevent water from leaking out.

Referring to claim 10, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sensor disclosed by Yamamoto by making the cap of a plastic material in order to use a material that is resistant to corrosive effects of the water, and since the particular type of material claimed by applicant is considered to be the use of a "preferred" or "optimum" material out of a plurality of well known materials that a person having ordinary skill in the art at the time the invention was made would have been able to provide based on the intended use of applicant's apparatus, i.e., suitability for the intended use of applicant's apparatus, which in this case is to provide a housing for a temperature sensor to measure the temperature of water in a washing machine. See *In re Leshin*, 125 USPQ 416 (CCPA 1960), where the courts held that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,072,473 to Thuruta et al [hereinafter Thuruta] in view of Yamamoto.

Thuruta discloses a washing machine having:

a water gauge chamber (2b) extending along an outer side of an outer edge of an outer tub of the washing machine; and

a hollow chamber cap that is located at a bottom edge of the water gauge chamber to close an opened bottom portion of the gauge chamber;

wherein an entire surface of the cap that is exposed to the water in the chamber defines an upper surface of the cap, the entire upper surface being a flat disk-shaped surface, and a hollow space of the cap faces downward and the water in the gauge chamber is above the cap (see figure 1).

Thuruta does not disclose locating a temperature sensor having signal lines in a seating portion of the hollow cap for measuring the temperature of the water in the chamber without the sensor directly contacting the water.

Yamamoto discloses a washing machine having a water gauge chamber extending along an outer side of an outer edge of an outer tub of the washing machine; and a hollow chamber cap that is located at a bottom edge of the water gauge chamber to close an opened bottom portion of the gauge chamber. A temperature sensor having signal lines is located in the hollow cap for measuring the temperature of the water in the chamber without the sensor directly contacting the water. Yamamoto teaches that this location is a desirable location for placing the temperature sensor since it allows the temperature of the water to be measured in order to control the water temperature and wash cycle automatically.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the machine of Thuruta by adding a temperature sensor having

signal lines to a seating portion of the hollow cap, as taught by Yamamoto, in order to measure the temperature of the water and control the water temperature and wash cycle automatically.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thuruta and Yamamoto, as applied to claim 3 above, and further in view of O'Connell.

Thuruta and Yamamoto disclose a machine having all of the limitations of claim 4, as stated above in paragraph 7, except for the cap having a heat insulating material inserted into its hollow space to maintain the sensor with in the cap and provide an adiabatic effect.

O'Connell discloses a temperature sensor for measuring temperature within a chamber. The temperature sensor is in a hollow probe that is filled with a heat insulating material. O'Connell teaches that it is beneficial to fill the probe with the material in order to maintain the sensor in place and provide efficient heat transfer (adiabatic effect) for faster response of the sensor (see column 3, lines 18-34).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the machine of Thuruta and Yamamoto by filling the hollow interior of the cap with a heat insulating material, as taught by O'Connell, in order to maintain the sensor in place and provide efficient heat transfer for faster response of the sensor.

9. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto.

Yamamoto discloses a temperature sensor comprising:

a water temperature measuring part (18) including a temperature sensor and signal lines for connecting the sensor to a circuit, and a cylindrical probe part of the cap containing the temperature measuring part therein and extending upward from the center of the cap to directly contact the water;

a water gauge chamber (14) extending along an outer side of an outer edge of an outer tub of a washing machine; and

a hollow chamber cap (17) that is located at a bottom edge of the water gauge chamber (see figures 2 and 3).

Yamamoto does not disclose the cap and the probe being made of two separate parts such that the probe extends through a hole in the upper surface of the cap to contact the water.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sensor disclosed by Yamamoto by making the cap of two separate parts such that the probe extends through a hole in the cap to contact the water in order to allow the length of the probe within the water to be adjustable, thereby maintaining the sensor within the water level of a particular machine, and since it has been held that the mere fact that a given structure is integral does not preclude its consisting of various elements. See *Nerwin v. Erlichman*, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of O'Connell.

Yamamoto discloses a sensor having all of the limitations of claim 6, as stated above in paragraph 9, except for the cap having a heat insulating material inserted into its hollow space to maintain the sensor with in the cap and provide an adiabatic effect.

O'Connell discloses a temperature sensor for measuring temperature within a chamber. The temperature sensor is in a hollow probe that is filled with a heat insulating material. O'Connell teaches that it is beneficial to fill the probe with the material in order to maintain the sensor in place and provide efficient heat transfer (adiabatic effect) for faster response of the sensor (see column 3, lines 18-34).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sensor of Yamamoto by filling the hollow interior of the cap with a heat insulating material, as taught by O'Connell, in order to maintain the sensor in place and provide efficient heat transfer for faster response of the sensor.

#### *Response to Arguments*

11. Applicant's arguments with respect to claims 1-4 and 8-10 have been considered but are moot in view of the new ground(s) of rejection.

12. Applicant's arguments with respect to claim 5 have been fully considered but they are not persuasive. Applicant's arguments that the In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the suggestion to modify the cap of the prior art to be of two separate pieces is in the knowledge generally available to one of ordinary skill in the art since a person of ordinary skill would realize that different sized washing machines will have different water levels in the chamber, and that it would be desirable to provide an adjustable cap, as stated above in paragraph 9, in order to accommodate the temperature sensor of the cap in different water levels.

Furthermore, Applicant's arguments that the temperature sensor (18) of Yamamoto cannot directly contact the water because it is covered by the chamber cap are not persuasive since this features upon which applicant relies is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In this case, claim 5 recites that the cylindrical probe directly contacts the water, and not that the temperature sensor (which is housed within the probe) directly contacts the water. Therefore, Yamamoto discloses this feature since the cylindrical probe of the cap directly contacts the water, wherein the temperature sensor (18) is housed within the probe, as shown in figure 3.

### ***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirellys Jagan whose telephone number is 571-272-2247. The examiner can normally be reached on Monday-Friday from 11AM to 4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ  
July 5, 2005



G. VERBITSKY  
MARY EXAMINER

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